Effects of Cannabis on the Body

Introduction to Chemical Additions

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How Ingested

- Smoking
- Eating / Drinking ingest
- Rectal
- IV- Intravenous (toxic)

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Smoking

- Rolled into cigarette (joint, reefer)
- Placed into a pipe or bong.
- Cigars: Tobacco is removed and replaced with cannabis (called a blunt)
  - Cannabis can be laced with other substances (cocaine, opium products)

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Some Smoking Devices

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Some Terms

- Blunt smoked with a 40 oz. malt liquor is called a “B-40”
- Joint combined with crack cocaine called “primos” or “woolies”
- Joints combined with PCP called “happy sticks,” “wickey stick,” “love boat,” or “tical.”

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Eating / Drinking

- Brownies shakes and other foods
- Brewed into a tea
- Others
- THC content is usually higher

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Rectal

- Rarely used
- THC levels similar to food

IV

- Also rarely used
- Extremely potent
- Can cause infections and other problems depending on the viscosity of the solution.

Effects of Cannabis on the Body

- Effects will depend on
  - Administration route
    - Smoking fast Oral slower
  - Level of THC
  - Expectancy
  - Set / Setting
  - Amount consumed
  - Influence of additional compounds

Respiratory System

- Throat irritation
- Bronchial irritation
- Bronchial inflammation
  - All create heavy coughs.
- Emphysema
- Correlations with cancers (see NIDA.gov)
  - Can doubles/triples the risk
  - Smoke contains 50 to 70 percent more carcinogenic hydrocarbons than does tobacco smoke
  - Also increases enzymes that converts some hydrocarbons into carcinogenic forms
- Health effects are similar to smoking cigarettes but faster due to the concentrations of smoke
- Also, trying to hold in the smoke as long as possible
  - More exposure to carcinogenic compounds
  - Creates more inflammation and damage.
- In solution can reduce coughs

Cardiovascular System

- Increase in heart rate
- Increase in blood pressure.
- Blood vessel dilation
- Increased risk of heart attack in the first hour after smoking (NIDA.gov)

Immune system

- THC depresses the immune system
  - Makes users more susceptible to cold, flu and other infections
  - Makes users more susceptible to BBPS
- Once you get a disease, it takes longer to recover.

Reproductive system

- Males
  - Decreases production of testosterone and sperm formation.
- Females
  - Can affect menstrual cycles and hormone levels
- Fetus
  - Can cause growth reduction and maternal lung damage

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Effects on the Brain

- Acts as an initial stimulant and later a depressant
- Get psychoactive impairment
- At higher levels is a pain inhibitor
- Causes a loss of muscular coordination
  - Often due to impacts on the cerebellum
- Impairs tracking ability and causes “trailing”
- Impairs short-term memory
  - Long term use associated with permanent memory loss

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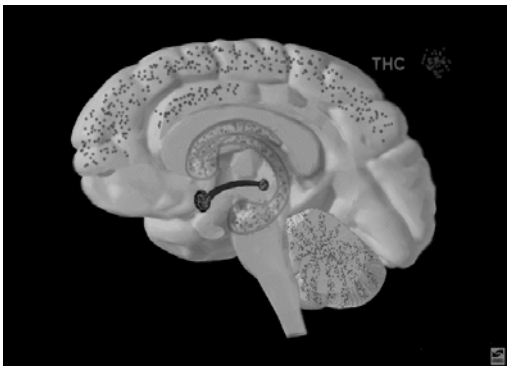
Effects on the Brain



Receptor Effects

- THC binds on THC receptors
  - Appears similar to opiates in the sense that dopamine molecules bind to a dopamine receptor (in blue)
- Once bound, dopamine is released
- Activates reward system
- Feels good

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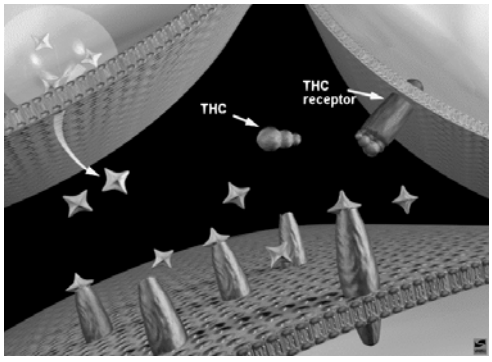
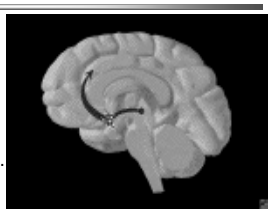
Effects on the Brain



Reward System

- Affects Medial Forebrain Bundle
  - Binding in nucleus accumbens.
  - Causes increased release of dopamine.
  - Increases of activity on reward pathway.
  - Creates addiction cycle.



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Psychological Effects

- Relaxation, Euphoria, etc.
- High levels – Confusion / Paranoia
- Mental dissociation from the environment
- May develop feelings of déjà vu
- Difficulty concentrating

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More Effects

- High levels can cause giddiness
- Can initially get increased alertness
- High levels can get major distortions and perceptions of time, color and sound
  - Called hallucinations
- For most users, THC exaggerates mood
- Personality becomes more suggestible

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Adverse Psychological Effects

- Anxiety
- Temporary psychotic reactions
- Extreme paranoia
- Hallucinations

- All tend to be rare
- Is usually dose related
  - Usually does not occur at lower levels

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Learning and Emotional

- Slows learning and disrupts concentration
  - Disrupts hippocampal formation
- Amotivational syndrome
  - Correlated with use levels
- Problem avoidance

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Tolerance / Dependence

- Chronic users develop tolerance similar to other drugs
- THC can persist in the body of a chronic user for up to 6 months even though effects last only 2-4 hours
- Hair samples become important for testing

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Withdrawal

- Withdrawal is typically delayed
  - THC can be stored in the fat cells
  - Later, the withdrawal effect may appear
- Symptoms include
  - Anger or irritability
  - Aches, pains or chills
  - Depression
  - Inability to concentrate
  - Similar to opiate withdrawal but at a lower level

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Other Withdrawal Symptoms

- Slight tremors
- Sleep disturbances
- Decreased appetite
- Sweating
- Craving

Neurons

- Causes down regulation and desensitization of brain cannabinoid receptors.
  - Result - Need more of the drug to get an effect (Tolerance)

Conclusions

- Lower risk for death than alcohol
- Still have lots of impacts on body systems
- Is not the same marijuana that many of your parents may have used.